IN THE SPECIFICATION

Please amend the paragraphs of the specification as follows:

On page 1, before paragraph [1001], please insert the following paragraph:

Claim of Priority under 35 U.S.C. §120

The present Application for Patent is a Continuation and claims priority to Patent No.

6,324,172, entitled "Method Of Rate Allocation In A Data Communications Network," issued

November 27, 2001, and assigned to the assignee hereof and hereby expressly incorporated by

reference herein.

On page 1, please replace paragraph [1002] with the following paragraph:

Channel capacity, a basic limitation of any system for data communications, may be

defined as the rate at which information can be passed from one end of a transmission channel to

the other, given some mode of transmission and some performance criteria (e.g., binary phase-

shift keying modulation of a 1.9-GHz RF carrier using polar NRZ signaling, with a bit-error rate

of 10⁻⁵). The rate at which information may be transferred from one point to another cannot

exceed the ability of the particular method and medium of transmission to convey that

information intelligibly. It follows that the rate at which a data producer outputs data into a

transmission channel cannot exceed the channel capacity, commonly measured in units of

information per units of time (e.g., Kbits/s).

On page 2, please replace paragraph [1004] with the following paragraph:

Two or more producers may wish to transmit information over the same channel. If, for

example, the producers are also physically separated, then their transmissions may not be

coordinated with each other. A data collision occurs when the several transmissions arrive at the

consumer having together exceeded the available channel capacity. (Note that in a time-division

multiple-access or TDMA wireless system, the channel capacity available to any producer may

change over time as a function of the number of producers using the same frequency channel, in

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that the available capacity will be zero during any period when another producer is using the

channel.) Such a collision causes all of the frames being transmitted to become irretrievably

corrupted, no matter how complete their transmissions were to that point. If re-transmission is

required (i.e., if the system cannot otherwise compensate for the loss of data), then the producers

must re-send these frames in their entirety. Therefore, one may clearly see that data collisions

directly and dramatically reduce the effective channel capacity.

On page 3, please replace paragraph [1007] with the following paragraph:

Alternatively, the rates of data production may vary significantly from one moment to the

next; i.e., the data traffic may be bursty. Traffic on high speed networks for data

communications, for example, tends to be bursty. Static allocation techniques are not well suited

for such environments. On one hand, data transmission applications are usually more tolerant of

delays than voice transmission applications, so a producer will not usually require the regulated

level of access to the channel which a static scheme provides. On the other hand, while

backlogged and therefore outdated voice information may simply be discarded by the producer

before transmission, discarding data information whose transmission has been delayed is not

usually a viable option. Therefore, if a producer's store of data information should begin to

accumulate faster than its buffering capacity can handle, the producer will temporarily need to

use more of the channel capacity than it has been assigned. Even if other producers are currently

idle, however, and plenty of channel capacity is presently available, a static scheme will not

accommodate the temporary redistribution of capacity needed in this situation.

On page 4, please replace paragraph [1009] with the following paragraph:

Now consider FIG. 2, in which channel capacity is allocated dynamically according to

each producer's ability to use the channel during any given quarter-second. At time 0, only

producer A has data to transmit. Therefore, we allocate the entire channel capacity of 200

Kbits/s to producer A, and it completes its task in 0.25 s, for a 75% savings over the static

allocation scheme. At time 0.5 s, producers B and C each have data to transmit, so we allocate

50% of the channel capacity to each one, and they complete their tasks in 0.5 s, for a savings of

50%. (Note that a more optimal scheme would allow either B or C to use the entire channel,

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completing transmission in 0.25 s. The other producer would still complete in [[.25]] $\underline{0.5}$ s, using

the entire channel between times 0.75 and 1.0 s.)

On page 5, please replace paragraph [1012] with the following paragraph:

For all of their advantages, however, dynamic allocation schemes may be much more

complicated to implement than static ones. In static allocation, a fixed set of rules is developed

and applied, and the only task during operation is to ensure compliance with these rules. In

dynamic allocation, on the other hand, the rules must adapt continually to match a changing

environment. An implicit requirement for a dynamic scheme, therefore, is a way for the

allocation mechanism to acquire knowledge about the environment: i.e., which of the producers

has data to transmit, and how much.

On page 9, please replace paragraph [1021] with the following paragraph:

One problem with using a request-grant system is that a producer may not know in

advance how much of the channel capacity it will need. Consider a producer made up of a buffer

memory unit connected to a wireless telephone through, e.g., a PCMCIA interface. Ideally, the

telephone will remain off-the-air until the buffer is full, at which time it will request permission

to transmit the contents of the buffer at maximum rate in a single burst. Unfortunately, unless

the buffer unit and the telephone are purchased as a single device, the capacity of the buffer will

generally not be known to the telephone. Also, there may be an additional store of data ready for

transmission and waiting on the other side of the buffer. Therefore, the telephone typically will

not know how much data is actually available for transmission, and consequently it will not

know what rate to request.

On page 9, please replace paragraph [1023] with the following paragraph:

A novel method is disclosed for the efficient allocation of the capacity of a common

channel among a set of data producers. In this method, a control unit issues an allocation grant

(i.e., a maximum permissible transmission rate) to each producer which is based on the extent to

which that producer has used a previous allocation grant. The method is applicable to any

system wherein the simultaneous use of a common channel by more than one producer may

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cause a data collision. Several variations of the method, using alternate methods of capacity

estimation and distribution, are also disclosed.

On page 13, please replace paragraph [1047] with the following paragraph:

Either of these schemes may be further modified by incorporating distinctions between

various groups of producers. For example, some identifiable group of producers may be

expected to use a lower rate on average than other producers, whether because these producers

are unable to produce and/or transmit data above a certain rate, or because the particular

application in which they are used is generally less transmission-intensive (e.g., POS terminals).

In such cases, as illustrated in FIG. 7, different basic rates may be used in reserving channel

capacity for different producers.

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